

**UNITED STATES PATENT AND TRADEMARK OFFICE**

*Examiner:* LOPEZ, Michelle

*Art Unit:* 3721

*Docket No.:* 3825

*In re:*

*Applicant:* MEIXNER, Gerhard, et al.

*Serial No.:* 10/593,984

*Filed:* September 25, 2006

**APPEAL BRIEF**

May 17, 2010

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sirs:

Appellants submit the following for their brief on appeal and respectfully request withdrawal of the outstanding rejections and placement of the application in line for allowance in consideration of same.

**I. REAL PARTY IN INTEREST**

The real party in interest in the instant application is the assignee of the application, Robert Bosch GmbH, Stuttgart, Germany.

**II. RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any related appeals or interferences with regard to the application.

**III. STATUS OF CLAIMS**

Claims 1, 3-9, 11 and 14-16 are pending, where claim 1 is the sole independent claim; claims 2, 10 and are cancelled; and claims 1, 3-9, 11 and 14-16 are appealed.

**IV. STATUS OF AMENDMENTS**

A final Office Action was mailed on December 11, 2009, objecting to the drawings and the Abstract, rejecting claims 1, 3-9, 11 and 14-16 under 35 USC 112, first paragraph, rejecting claims 1, 3-9, 11 and 14-16 under 35 USC 112, second paragraph, finally rejecting claims 1, 3-9, 11, 14 and 15 under 35 USC §103(a) over US Patent No. 1,901,981 to Ousbäck (Ousbäck) in view of US Patent No. 7,331,407 to Stirm (Stirm) further in view of US Patent No. 4,401,419 to Rabe (Rabe) still further in view of US Patent No. 3,650,336 to Koehler and finally rejecting claim 16 under 35 USC §103(a) over Ousbäck in view of Stirm

further in view of Rabe still further in view of Koehler still yet further in view of US Patent No. 4,828,046 to Pyatov (Pyatov).

Appellants filed a Request For Reconsideration on February 12, 2010, submitting an amended Abstract and corrected drawing figure to obviate the objection to the drawings and Abstract as well as the rejections under §112, first paragraph. The Request For Reconsideration explained and made definite the unclear term under §112, second paragraph, and argued for patentability of the claims under §103(a) over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler, alone and in further combination with Pyatov.

An Advisory Action was mailed on March 9, 2010, entering the Request For Reconsideration but nevertheless maintaining the final rejection of claims 1, 3-9, 11 and 14-16 over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler, alone and in further combination with Pyatov.

Appellants filed their Notice of Appeal on March 17, 2010.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 sets forth an electric power tool, in particular an electric hammer **[Fig. 1]**, having a drive unit (11) contained in a housing (10), an impact mechanism (12), and a handle (13) **[pg. 5, lines 6-7]**, including a cam (14) that is driven by the drive unit (11) **[pg. 5, line 8]**; the impact mechanism (12) has a piston (15) and a striker (16) and arranged to be moveable inside a separate guide cylinder (17) that is stationary in relation to the piston (15), striker (16) and the cam (14) **[pg. 5, lines 16-18]**;

wherein the piston (15) is connected to the drive unit (11) by a drive element (18) embodied as a cranked rod **[Fig. 3; page 7, lines 4-5]** comprising a cranked section (26) and a first longitudinal segment on a first side of the cranked section (26) and a second longitudinal element on a second side of the cranked section (26) **[page 7, lines 10-12]**;

wherein a Scotch Yoke slider crank (23) is provided to transmit the force between the cam (14) and the drive element (18) **[page 7, lines 6-8]**; and

wherein an angle between a longitudinal axis (25) of the guide cylinder (17) and a rotation axis (21) of the drive unit (11) is dependent upon an angular offset between the first and second longitudinal sections of the cranked rod, and the cranked section (26) **[page 7, lines 13-16]**.

## **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

1. Whether independent claim 1, and claims 3-9, 11, 14 and 15 that depend from claim 1, are patentable under 35 USC §103(a) over US Patent No. 1,901,981 to Ousbäck (Ousbäck) in view of US Patent No. 7,331,407 to Stirm (Stirm) further in view of US Patent No. 4,401,419 to Rabe (Rabe) still further in view of US Patent No. 3,650,336 to Koehler..

2. Whether dependent claim 16 is patentable under 35 USC §103(a) over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler still yet further in view of US Patent No. 4,828,046 to Pyatov (Pyatov).

## VII. ARGUMENT

1. Independent claim 1 and claims 3-9, 11, 14 and 15, which depend from claim 1, are patentable under §103(a) over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler.

To support the final rejection of independent claim 1, the Examiner asserts that Ousbäck discloses an electric power tool with a drive unit (electric motor 4) contained in a housing ( casing 1), an impact mechanism, and a handle 5, including a cam (cross head 7) that is driven by the drive unit (driving shaft 6), and that the impact mechanism has a piston 11 connected to the drive unit 6 by a connecting rod 10 **[where a crank web 9 connects the connecting rod 10 to driving shaft 6 via a cross head 7 as shown in Fig. 1]**, and

arranged to be moveable inside a separate guide cylinder 3 that is stationary in relation to the piston 11,

wherein the longitudinal axis of the guide cylinder 3 and the rotation axis of the drive unit (driving shaft) 6 are angled with respect to each other (as shown in the embodiment of fig. 4).

The Examiner asserts that Ousbäck fails to disclose a striker (weight 13) inside the guide cylinder 3 that is stationary in relation to the piston, the striker and the cam, but that Stirm discloses an impact mechanism including cam mechanism (523, 533) driven by drive unit (511, 514) that includes a piston (520) and a striker (569) movable inside a separate guide cylinder (530), wherein the

piston (520) is connected to the drive unit (511, 514) by a drive element (rod 531).

The Examiner then asserts that it would have been obvious to have modified Ousbäck's tool with Stirm's striker (569) movable inside a separate guide cylinder (530) in order to efficiently guide a hammer/impact action to a tool bit.

The Examiner then further asserts that Ousbäck as modified by Stirm fails to disclose that connecting rod 10 is a cranked rod comprising a cranked section, a first longitudinal segment on a first side of the cranked section and a second longitudinal segment on a second side of the cranked section, but that Rabe teaches the use of a motion conversion mechanism from a rotary motion to a reciprocating motion having a drive unit with a cam 28, a piston 6 and a cranked rod (24, 25) connecting piston 6 to the drive unit for the purpose of reducing the overall length.

The Examiner then concludes that it would have been obvious to have modified Ousbäck as modified by Stirm with Rabe's cranked rod (24, 25) to reduce tool length.

The Examiner then further asserts that Ousbäck fails to disclose a Scotch Yoke slider crank provided to transmit a force between cam (cross head) 7 and driving shaft 6, but that Koehler teaches the use of a slider crank 196 in Fig. 7, described at col. 8, lines 74-75; col. 9, lines 1-3 to deduce the length of the tool, and that the skilled artisan would have found it obvious to modify the Ousbäck as

proposed to be modified by Stirm and by Rabe with Koehler' slider crank 196 to reduce overall length.

The March 9, 2010 Advisory Action disputes appellants' position presented in the February 12 Request For Reconsideration that Ousbäck's piston 13 is not connected to the driving unit 6 via connecting rod 10 directly, but driving drive unit 6 is connected to cam (cross-head 7), which cam is connected to crank web 9, which crank web 9 is connected to connecting rod 10, which connecting rod is connected to guide piston 11, and that impact mechanism 13 is connected to guide piston 11 throughout interconnecting springs 12.

That is, the Advisory Action insists that Ousbäck's guide piston 11 connects to driving shaft 6 **[and guide ring 8]** via a connecting rod 10.

The Advisory Action further disputes appellants' position that the longitudinal axis of Ousbäck's guide cylinder 3 and the rotation axis of Ousbäck's driving unit 6 are not angled, but instead they are located at 180° relative to one another.

That is, the Advisory Action insists that claim 1 merely discloses "a drive unit," and that Ousbäck's driving unit 6 and drive ring 8 are selectively angled with respect to the longitudinal axis of guide cylinder 3.

Appellants respectfully disagree with these (Advisory Action) analyses, with the final Office Action and that it would have been obvious to have modified Ousbäck with the teachings of Stirm, Rabe and Kohler to realize a power tool with the features and limitations of independent claim 1.

With respect to the first point raised in the Advisory Action, appellants respectfully assert that Ousbäck's mechanical hammer includes a complex and novel mechanism for reciprocating the striking member of a hammer by a motor driven rotating element.

While Ousbäck's guide piston 11 is coupled to utilize the driving rotational energy of driving shaft 6, and that said coupling relies upon connecting rod 10, the structure coupling Ousbäck's guide piston 11 to driving shaft 6 **[and guide ring 8]**, including connecting rod 10, does not meet the limitations of claim 1 (i.e., piston (15) connected to the drive unit (11) by a drive element (18) embodied as a cranked rod ...; see appellants' Fig. 3 and the language of claim 1).

With respect to the second point raised in the Advisory Action, appellants respectfully assert that their Fig. 3 shows drive unit (11) at an offset angle  $\alpha$  to longitudinal axis 25 of guide cylinder (17), and same is not disclosed by Ousbäck.

Ousbäck at page 1, lines 40-58 explains that his novel mechanism includes a motor 4 and motor driving shaft 6 connected with a cross-head 7 having the shape of a disk, and rotating on ball bearings in a guide ring 8 provided with a round side surface. Guide ring 8 is situated in a casing 1 and carried by diametrically opposed studpins 16 to enable the disk or cross-head 7 to turn within the casing. The cross-head 7 is rigidly connected to a crank web 9, and a connecting rod or link 10 is pivoted to the crank web 9.



While appellants agree that Ousbäck's drive ring 8 containing cross-head 7 is at a cross angle to the longitudinal axis of guide cylinder 3 and the axis of rotation of driving shaft 6, appellants respectfully disagree that the longitudinal axis of guide cylinder 3 is at a cross angle, or at an offset angle, to the axis of rotation of driving shaft 6, as clearly required by independent claim 1 (see Ousbäck's Fig. 1).

And while appellants agree that the claims should be given their broadest reasonable interpretation consistent with the Specification, claim 1 does not merely disclose "a drive unit," as asserted but requires a drive unit wherein an angle between a longitudinal axis (25) of the guide cylinder (17) and a rotation axis (21) of the drive unit (11) is dependent upon an angular offset between the first and second longitudinal sections of the cranked rod, and the cranked section (26).

For that matter, while the Examiner asserts that it would have been obvious to have modified Ousbäck's tool with Stirm's striker (569) movable inside a separate guide cylinder (530) in order to efficiently guide a hammer/impact action to a tool bit, appellants further disagree.

Ousbäck's guide sleeve 14, as shown in Fig. 1, is arranged in sleeve 3 to guide piston 11, weight 13 and tool holder 2.

While Ousbäck's guide cylinder 3 and guide piston 11 or weight 13 could be modified by Stirm's striker (569) movable inside a separate guide cylinder (530), this could not be done without first or in addition also modifying guide sleeve 14, regulating collar 15, etc. For that matter, appellants do not see how

Stirm's striker (569) movable inside a separate guide cylinder (530) could be arranged in Ousbäck's guide sleeve 14 in guide cylinder 3 to cooperate with Ousbäck's spring 12. It would not have been obvious to make so many required changes under the law.

That is, modifying Ousbäck with Stirm's striker (569) movable inside a separate guide cylinder (530) would require modifications so significant as to render Ousbäck unsatisfactory for its intended purpose (see In re Gordon, 221 USPQ 1125 (Fed. Cir. 1984)), and/or at least change Ousbäck's respective principles of operation (see In re Ratti, 123 USPQ 349 (CCPA 1959)). In either case, this compels a legal conclusion that the proposed combinations cannot be obvious under the law; MPEP 2143.01.

While the Examiner asserts that Ousbäck as modified by Stirm fails to disclose that connecting rod 10 is a cranked rod comprising a cranked section with first and second longitudinal segments, but that it would have been obvious to modify same with Rabe's cam 28, piston 6 and cranked rod (24, 25) connecting piston 6 to the drive unit to reduce overall length, appellants again disagree.

Rabe discloses that cranked connecting rod 24 is mounted on a crosspin 22 in piston 6 using bearing 31, cranked in central region 25 and mounted by its free end by a bearing 26 on stud 29 attached to the outside of a rotor 28 eccentrically of the axis of rotation 27 of the rotor. The axis of rotation of the drive unit comprising bearing 26, stud 29 and rotor 28 is 90°. Hence, there is no

angular offset between the first section stud 29 and portion after the cranked section (central region 25).

Perhaps more importantly, however, Ousbäck/Stirm could not be modified by the teachings of Rabe without rendering Ousbäck unsuitable for its intended purpose (Gordon), or changing Ousbäck's principles of operation (Ratti), which means that the proposed combination cannot be obvious under the law (MPEP 2143.01).

Furthermore, while the Examiner asserts that it would have been obvious to modify the Ousbäck as proposed to be modified by Stirm and by Rabe with Koehler' slider crank 196 to reduce overall length, appellants again respectfully disagree.

Appellants claim that piston (15) is connected to the drive unit (11) by a drive element (18) and a Scotch Yoke slider crank (23) is provided to transmit the force between cam (14) and the drive element (18). Koehler does not teach or suggest that its piston 26 is connected to its drive unit 22 by a drive element and the Scotch Yoke motion converting mechanism 196 to “transmit force between a cam and drive element,” as claimed.

That is, Koehler's Scotch Yoke motion converting mechanism 196 includes transversely extending crosshead 198, which is **integrally** formed of rear wall member 200 of piston 26 (emphasis added). Koehler's drive element is not configured to operate as claimed drive element (18), for connecting a Scotch Yoke motion converting mechanism to a piston. Koehler's element 203 is a crankpin, element 204 is a crankshaft and element [212] is a pin, where

crankshaft 204 **directly** drives the Scotch Yoke motion converting mechanism 196, integrally formed as part of piston 26 (emphasis added). Hence, Koehler does not teach or suggest a “Scotch Yoke slider crank that transmits force between the cam and drive element,” as claimed.

Moreover, Kohler’s piston 26 and free floating driver 30 are not seen to be moveable inside a separate guide cylinder that is stationary in relation to the piston and driver. The free floating driver is contained within the moving piston 26.

So even assuming arguendo that Ousbäck/Stirm/Rabe could be modified by the teachings of Kohler, such modifications could not be made without rendering Ousbäck unsuitable for its intended purpose (Gordon), or changing Ousbäck’s principles of operation (Ratti), negating obviousness under the law (MPEP 2143.01)

Independent claim 1, and claims 3-9, 11, 14 and 15 that depend from claim 1 are, therefore, patentable under 35 USC §103(a) over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler.

**2. Depend pendent claim 15 is patentable under §103(a) over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler still yet further in view of Pyatov.**

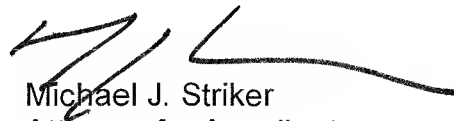
To support the rejection of claim 16, the Examiner asserts that Pyatov discloses a power tool with an impact piston made from a light alloy such as aluminum and that it would have been obvious to modify Ousbäck modified by

the teachings of Stirm, Rabe and Koehler with a piston made of a light alloy as taught by Pyatov for enhanced durability.

Appellants respectfully disagree that it would have been obvious for the skilled artisan to modify Ousbäck by Stirm, by Rabe and by Koehler, as explained above. Further modifying the proposed combination with the teaching of Pyatov would not overcome the above-described shortcomings and limitations. Hence, claim 16 is not obvious under §103(a) over Ousbäck in view of Stirm, further in view of Rabe still further in view of Koehler and still yet further in view of Pyatov for at least the same reasons as set forth above for the patentability of claim 1 from which claim 16 depends.

In view of the foregoing discussion, it is respectfully requested that the Honorable Board of Patent Appeals and Interferences overrule the final rejection of claims 1, 3-9, 11 and 14-15 under §103(a) over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler and of claim 16 over Ousbäck in view of Stirm further in view of Rabe still further in view of Koehler and still yet further in view of Pyatov and hold that Appellants' claims be allowable thereover.

Respectfully Submitted,



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## VIII. CLAIMS APPENDIX

### Claims on Appeal:

1. An electric power tool, in particular an electric hammer, having a drive unit (11) contained in a housing (10), an impact mechanism (12), and a handle (13), including a cam (14) that is driven by the drive unit (11); the impact mechanism (12) has a piston (15) and a striker (16) and arranged to be moveable inside a separate guide cylinder (17) that is stationary in relation to the piston (15), striker (16) and the cam (14);

wherein the piston (15) is connected to the drive unit (11) by a drive element (18) embodied as a cranked rod comprising a cranked section (26) and a first longitudinal segment on a first side of the cranked section (26) and a second longitudinal element on a second side of the cranked section (26);

wherein a Scotch Yoke slider crank (23) is provided to transmit the force between the cam (14) and the drive element (18); and

wherein an angle between a longitudinal axis (25) of the guide cylinder (17) and a rotation axis (21) of the drive unit (11) is dependent upon an angular offset between the first and second longitudinal sections of the cranked rod, and the cranked section (26).

2. (cancelled)

3. The electric power tool as recited in claim 1,

wherein the piston (15) is embodied as a separate component.

4. The electric power tool as recited in claim 3, wherein the drive element (18) is embodied as a cranked rod.

5. The electric power tool as recited in claim 1, wherein the piston (15) and the drive element (18) are connected to each other by means of a pin (19).

6. The electric power tool as recited in claim 5, wherein a pin axis of the pin (19) and a rotation axis (21) of the drive unit (11) are oriented at an angle to each other.

7. The electric power tool as recited in one of claim 1, wherein the piston (15) and the drive element (18) are embodied as integrally joined to each other.

8. The electric power tool as recited in claim 3, wherein the drive element (18) is at least partially comprised of plastic.

9. The electric power tool as recited in claim 1, wherein the piston (15) and the striker (16) have the same diameter (22).

10. (cancelled)

11. The electric power tool as recited in claim 1, wherein a ball (24) is able to move inside the slider crank (23).

12. (cancelled)

13. (cancelled)

14. The electric power tool as recited in claim 1, wherein the drive unit (11) is situated centrally in relation to a longitudinal span of the handle (13).

15. The electric power tool as recited in claim 1, wherein the impact mechanism (12) is embodied as a pot-type piston (27) and the pot-type piston (27) is able actuate a pot-type striker (28).

16. The electric power tool as recited in claim 15, wherein the pot-type piston (27) is comprised of light alloy.



**IX. EVIDENCE APPENDIX.**

None.

**X. RELATED PROCEEDINGS APPENDIX.**

None.